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Comparison of computer-based Ishihara test versus online D-15 dichotomous test in colour vision screening

Khin Cho Aung^{1*}, Muhammad Hamdi Mahmood², Mar Mar Lwin¹, Khin Than Yee², Mira Khairunnisa Kamil³, Rachel Meni Muiyang³, Hamsaa Varrthini Mohana Kumar³

¹Department of Basic Medical Science, Faculty of Medicine and Health Science (FMHS), University Malaysia Sarawak (UNIMAS), Sarawak, Malaysia

²Department of Para-Clinical Sciences, Faculty of Medicine and Health Science (FMHS), University Malaysia Sarawak (UNIMAS), Sarawak, Malaysia

³Preclinical students in Medical Program, Faculty of Medicine and Health Science (FMHS), University Malaysia Sarawak (UNIMAS), Sarawak, Malaysia

*cakhin@unimas.my

Most online colour vision tests have varying degrees of quality and are variations of classical Ishihara test. The choice of test depends on multiple factors, including the reason for assessment of the persons, however, it is necessary to choose quick and accurate screening test in clinical practice. Objective of this study is to compare the computer-based Ishihara test and online D-15 dichotomous test in colour vision screening. A total of 302 medical and nursing students aged between 17-25 years were screened by these two tests in a computer lab in University Malaysia Sarawak. The results showed 295 (97.7%) normal and 7 (2.3%) defects in Ishihara test; while 292 (96.7%) normal and 10 (3.3%) defects in the online dichotomous test. Of 70 males and 232 females, 7 (10.0%) males in the Ishihara test, 8 (11.4%) males, and 2 (0.9%) females in the online test were found to have defects. There was strong agreement between results of two tests (Kappa:0.82). In this study, Ishihara test screens the colour vision and dichotomous test shows the type and severity of the vision defect, which mainly occurs in male. This present study concludes that a standardised online colour vision test is equally comparable to the traditional Ishihara test, thus providing an alternate robust option for colour vision screening in healthcare practice. Nevertheless, any person identified as colour vision deficient by online screening tools will require to further consult with an eye care professional.

Keywords: Colour vision, Accurate & robust, Screening test, Computer-based Ishihara test, Online D-15 dichotomous test